

DMS - 6270**BIAXIAL GEOGRID FOR ENVIRONMENTAL CRACKING****EFFECTIVE DATE: JANUARY 2010**

6270.1. Description. This Specification governs the Quality Monitoring Program (QMP) for synthetic biaxial geogrid used to reduce cracking in pavement structures induced from volumetric shrinkage of soils. Grid used in this application is intended to intercept cracks and prevent the transmission of cracking to other pavement layers above the grid. Grid used in this application is not intended for structural improvement.

6270.2. Units of Measurements. The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.

6270.3. Definitions.

- A. Geogrid**—a geosynthetic formed by a regular network of integrally connected elements with apertures sufficiently large as to allow interlocking with surrounding geo-materials.
- B. Pre-Qualification**—the process through which producers qualify for the QMP.
- C. Producer**—a manufacturer of any of the products covered by this Specification or a company that sells its product under a private label agreement with a manufacturer.
- D. Biaxial Geogrids**—materials meeting the definition of geogrid that have properties measured in one direction that are similar to the measured properties in the other direction. The ratio of corresponding properties for the two directions will be less than 2.0, where the largest measurement is the numerator.
- E. Independent Testing Laboratory**—a third party lab capable of conducting the tests discussed in this Specification.

6270.4. Material Producer List. The Materials and Pavements Section of the Construction Division (CST/M&P) maintains the material producer list (MPL) of all materials conforming to the requirements of this program. Materials appearing on the MPL, entitled "[Biaxial Geogrid for Environmental Cracking](#)," require no further project testing, unless deemed necessary by the Project Engineer or CST/M&P. Only materials appearing on the MPL may be used on Department projects. To obtain a place on this list, the product must be accepted into the QMP.

6270.5. Pre-Qualification Procedure.

- A. Independent Testing.** Prospective producers must have an independent laboratory test their material in accordance with the requirements listed in Section 6270.7.B.

B. Pre-Qualification Request. Submit a written request for evaluation to the Texas Department of Transportation, Construction Division, Materials and Pavements Section (CP51), 125 E. 11th Street, Austin, Texas 78701-2483.

Include the following information with the request:

- Producer name
- Product name and designation
- Physical and mailing addresses
- Independent laboratory test report with test data showing compliance of the material for each requirement listed in Section 6270.7.B
- Contact person and telephone number
- Name of product manufacturer if private labeling.

C. Pre-Qualification Sample. After receiving a request for QMP pre-qualification, CST/M&P will contact the producer and request samples for testing.

D. Sampling and Testing. CST/M&P will test the samples provided to verify compliance with the requirements listed in Article 6270.7.

E. Evaluation. CST/M&P will notify producers of approval or disapproval after completion of material tests and subsequent evaluation.

1. Qualification. CST/M&P will accept into the QMP and add to the MPL products meeting the requirements of this Specification.

Report changes in the composition or in the manufacturing process of any material to CST/M&P. Significant changes reported by the manufacturer, as determined by the Director of CST/M&P, may require sample re-submission for pre-qualification.

2. Failure. Producers not qualified under this Specification will neither be accepted to the QMP nor added to the MPL, may not furnish materials for Department projects, and must show evidence of correction of all deficiencies before reconsideration for qualification

Costs of TxDOT's sampling and testing by Department personnel are normally borne by the Department; however, the costs to sample and test materials failing to conform to the requirements of this Specification are borne by the producer. This cost will be assessed at the rate established by the Director of CST/M&P in effect at the time of testing.

Amounts due the Department will be deducted from monthly or final estimates on contracts, from partial or final payments on direct purchases by the State, or directly billed to the producer.

6270.6. Quality Monitoring Requirements. CST/M&P will re-qualify materials in the QMP every 2 years.

A. QM Sample. The producer must submit a sample of each pre-qualified material every 2 years to CST/M&P for testing. Include with the sample a recent test report from an

independent laboratory showing compliance with the material properties as stated in Section 6270.7. Producers should submit samples and test reports at least 1 month before the beginning of the pre-qualification period to allow sufficient time for testing. Any material not submitted on time may be delayed in posting on the MPL.

- B. QC Testing Reports.** All producers accepted to the QMP must perform their own QC testing to verify compliance with this Specification. Testing is required for every material that is pre-qualified under the QMP.

Suppliers who private label geogrid may keep QC reports from the material manufacturer, but these records must be readily available for inspection by Department representatives. Producers must maintain a complete record of all QC test reports for the previous and current calendar year.

- C. Periodic Evaluation.** The Department reserves the right to conduct random sampling of pre-qualified materials for testing and to perform random audits of test reports. CST/M&P reserves the right to test sampled materials to verify compliance with this Specification. Department representatives may sample material from the project site and the warehouse. Failure of materials to comply with the requirements of this Specification as a result of periodic evaluation may be cause for removal of those materials from the QMP and the MPL.

- D. Disqualification.** The Department may disqualify and remove the producer from the QMP and the MPL if any of the following infractions occurs:

- Geogrid fails to meet the material requirements stated in this Specification,
- Producer fails to report changes in the product to CST/M&P, or
- Producer fails to comply with the documentation requirements in this Specification.

Once disqualified, the producer will not be allowed to supply material to Department projects for 1 year, or as determined by the Director of CST/M&P. After this period has expired, the producer must re-qualify to regain QMP status.

- E. Re-Qualification.** If a producer desires to re-qualify after this disqualification period, the producer must first submit a request to CST/M&P and include a recent test report from an independent laboratory with data certifying that the geogrid meets the material requirements in this Specification. Once accepted, all procedures and requirements as stated in Sections 6270.5 and 6270.6 of this Specification apply.

6270.7. Material Requirements.

- A. General Requirements.** Provide a biaxial geogrid:

- that meets the definition in Section 6270.3.D and
- that is resistant to damage during construction, including ultraviolet degradation, and is resistant long-term to chemical and biological degradation.

- B. Physical Requirements.** Provide geogrid meeting the requirements specified in Table 1. Use roll widths and lengths shown on the plans or as approved.

Table 1
Geogrid Requirements

Property	Test Method	Requirements
Ultimate Tensile Strength (lb./ft.) MD ² and CMD ²	Tex-621-J	850 minimum
Tensile Strength at 2% strain (lb./ft.) MD and CMD	Tex-621-J	270 minimum
Junction Strength (lb./junction) MD and CMD	Tex-621-J	20 minimum
Aperture Size (in.) Range in either MD or CMD	Tex-621-J	0.5–2.0
Percent Open Area	Tex-621-J	60% minimum
Resistance to Installation Damage a. Ribs b. Junctions c. Retained tensile strength ratio	Tex -629-J	≤ 2 ruptured ≤ 2 displaced or ruptured 75%

1. Machine direction (MD) and cross-machine direction (CMD) refers to the warp (machine) and fill (cross machine) directions in the manufacturing process.
2. Determined as a secant modulus without offset allowance.

6270.8. Packaging Requirements. Package the geogrid in rolls of the length and width specified on the plans, as directed by the Engineer, or as specified in the purchase order awarded by the State.

Each roll should be one continuous piece packaged in a suitable sheath, wrapper, or container to protect the geogrid from damage due to ultraviolet light, moisture, and normal storage and handling.

6270.9. Identification. Identify each roll with a tag or label securely affixed to the outside of the roll on one end. List the following information on the label:

- Unique roll number, serially designated
- Producer's lot number or control numbers
- Name of producer
- Brand name of product
- Style or catalog designation of product
- Roll width and length